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19 Years
Clover Growing
IN
North Dakota
BY
DATUS C. SMITH



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EXPERIENCES
AT
CLOVERLEA FARM

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In Clover at Cloverlea Farm

Clover Growing

At Cloverlea Farm

Cloverlea Farm, at Blanchard, Traill County, North Dakota, consists of 2,240 acres of medium Red River valley soil, all arable, save 20 acres. The farm was established by the writer in the days of the Territory on the virgin prairie and continues under the same ownership and management, with such advantage as may come to a farm long operated with definite ideals.

EARLY DAYS

In the beginning Cloverlea Farm (which, by the way, did not take its name until it had earned it in broad fields of clover) was devoted entirely to wheat like all other farms of the valley. Year after year we would plow and sow and reap a crop of wheat; doubt of a crop there was none in those days. But crops to be had for the asking are past in North Dakota—the land can no longer be profitably farmed in the old way.



Harvesting in the Early Days

This was foreseen by many, and strenuous efforts were begun to get out of "all wheat," especially when the inevitable era of low prices for wheat set in. One thing was accepted by all men at that time, that we were too far north to grow clover. So, everything else was tried. Some went into sheep and more

into cattle, without adequate preparation in fences, pastures and hay lands, and then, almost to a man, out again. Others took to raising hogs, but however profitable hogs may be they can never afford extensive rotation in the prairie farming of North Dakota. But the thing that swept the entire older part of the state was summer fallowing: that was to redeem us from all our ills; instead, it filled the ditches everywhere with the precious top soil, already too fine from loss of humus through continued cropping. Then the summer fallow as a substitute for real rotation also went by the board.

EXPERIMENTS IN CLOVER

Cloverlea Farm had its fair share in these things, but it was at the same time striving for something better. With clover constantly in mind the writer made visits to the best farming sections of southern Minnesota and Michigan and to the principal clover district of Wisconsin. Visits were also made to the Experiment Stations of those states. To every man we said "Will you please tell us about clover?"

Modest experiments were also begun at Cloverlea in red clover, alsike and white clover, in alfalfa and even in sweet clover, 200 pounds of the latter seed being secured from Mississippi for the trial. Alsike, notwithstanding the Eastern booming it had at the time, proved too small and needed more water than it could get. Alfalfa we tried in every way, with a nurse crop and without, broadcasted and cultivated in drill rows—but no one told us then of inoculation, and the alfalfa languished. Sweet clover seemed to fail, doubtless it was simply because the seeds were too hard to germinate the first year. But we stuck to red clover and WON.

FINAL SUCCESS

The first field crop was planted in 1897. It consisted of 3.83 acres. As an experiment the results would have been called meager but for the fact that it did demonstrate that red clover had actually lived over a severe winter on the open

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Dakota prairie. All our experiments previous to this had been in more or less protected situations near the buildings.

In 1899 we laid down at Cloverlea a full quarter section to clover and timothy, mixed half and half by weight. This field came through the winter badly and the great drought of 1900 finished all the clover, licking up every leaf, but fortunately leaving us the timothy. That experience gave us serious pause for a year; but in 1902 we had recovered full breath and were up again, planting that year 160 acres of clear clover and 320 acres of clover and timothy mixed.

Lest it may seem a thing of the past, it may be mentioned that in the past season, 1915, we laid down 377 acres in clear red clover and clover and timothy mixed.

OUR FIRST CLOVER SEED

No attempt was made during the first few years to save seed at Cloverlea, not only because there was no huller in the country, but also because the demands for hay and pasturage were then so urgent. Until 1904 we brought in clover seed from southern Minnesota and Wisconsin, each lot being specially selected for us in order to get the cleanest and most vigorous seed obtainable. In 1905 Cloverlea Farm got the most modern clover huller, the first by several years, we believe, to be brought into the state. Since 1904 we have brought in no clover seed from the outside. The result has been the gradual development at Cloverlea of thoroughly acclimated red clover.

METHODS AT CLOVERLEA

There is no system of clover raising in any state to the east of us that will entirely fit the requirements of North Dakota, as we have learned through unhappy experiences.

EARLY SEEDING

The earlier the clover crop can be put in the better—this is the rule at Cloverlea. In some situations very early seeding is

an absolute necessity on the well-worn wheat soils that are wisely chosen to be laid down to clover. Everything must be done to give the young clover plants a good chance. Starting with a soil somewhat depleted, early seeding is a great help. Of late years earliest seeding has not been indispensable at Cloverlea because the soil is now in so much better condition than it was when we began raising clover.

THE SEED BED

A firm seed bed in the best possible tilth is for clover a principle well understood; still, only the wary avoid pitfalls known to all. The only catch of clover that ever failed us in the spring was on a piece of fall-plowed land so dry as to be the first seeded and so mellow that we thought no harrowing beyond once covering was needed. There was the mistake; the rather dry summer caught this field, though another seeded the same spring came through all right.

METHODS OF SEEDING

We went through the whole range of seeders, wheelbarrow seeders, rake seeders and seeder attachments for grain drills, seeking to follow the best practice of the eastern states, requiring very shallow seeding—and there are those who, possibly without experience, still advise that practice for North Dakota. But at Cloverlea we came in the end to mixing the clover seed (and clover and timothy) with the seed wheat and running the seeder disks pretty shallow. This may look like “slack farming,”—we thought so once—but we have followed it many years with much satisfaction. The possibility of dry summers makes rather deep seeding necessary. The mixing should be done only at the buildings, not in the seeder box. We once tried mixing the clover seed in the seeder boxes in the field and got an uneven stand.

SEED PER ACRE

We have gradually increased the amount of seed per acre. We are now using 10 pounds of clear clover when alone and 5 pounds of clover and 5 pounds of timothy for mixed seeding.

This is an abundance in favorable seasons on a good seed bed for average North Dakota soils, which are naturally strong, but on the whole we feel inclined to a somewhat less proportion of timothy.

NURSE CROPS

We have settled down to a regular seeding of wheat as the most satisfactory nurse crop for clover in North Dakota. A heavy crop of oats will surely smother clover. Barley, like all grains, takes a good deal of water at ripening time, and with barley that happens sometimes to be the driest part of the season. Besides that, barley is generally seeded late and on spring plowing, both bad for clover.

Rye, a favorite nurse crop in the east, has here the same objection as barley in robbing the young clover plant of moisture in midsummer. This may be fully atoned for by the fact that with rye the clover may get much earlier seeding even on the yet frozen ground in the spring. There is, however, a reason often conclusive against rye, and that is the greater need of clover on some other land than rye stubble.

INOCULATION

We believe thoroughly in inoculation for alfalfa and some other crops, but we have found red clover little in need of it at Cloverlea; we have had excellent crops of clover on fields never before in clover. The bacteria may be carried in the seed; quite likely it is already in many soils.

MANURE

It is difficult to map out, or follow, any precise plan for the use of manures on a North Dakota farm, various limitations interfering to prevent it.

At Cloverlea we have come to believe that the best possible general use of manure is in connection with clover and grass, and not on corn ground. In summer, we haul the manure every day direct from the horse barn to the field with a manure spreader. We would not put manure on mature clover or

alfalfa, but as a top dressing for the young clover in the fall after the nurse crop is off we find it invaluable, and there is nothing like it for a timothy crop, old or new. Often we cannot reach the clover and timothy owing to the distances from the buildings. Whatever manure we have left over goes, as a rule, in a thin top dressing to nearby pastures, beginning at the further side to avoid repeated applications near the gate. This all relates to fresh horse manure hauled daily from the barn.

In winter, when top dressing can no longer be done, the fresh horse manure is, when the weather and roads will permit, hauled out to distant fields most needing it and piled there to be distributed later. The well rotted yard manure, so far as it cannot be used for top dressing, is spread first on ground that is to go into alfalfa without a nurse crop, and after that on corn ground, not so much for the benefit of the corn as for the crops to follow, alfalfa and potatoes at present at Cloverlea.

If you have clover, stock will follow, and that means manure and crops; and it should not be forgotten that manure from clover hay is much richer than common manure.

LIME AND COMMERCIAL FERTILIZERS

There is as a rule—though there are exceptions—enough lime in the soil of North Dakota to render it unnecessary, even for clover, to add lime. So, little attention need be paid the question of acid soils.

President E. F. Ladd, of the Agricultural College, then head of Chemistry Department, selected Cloverlea Farm for a comprehensive test of commercial fertilizers in 1911, 30 acres being devoted to the experiment. The work was under the immediate charge of Prof. J. W. Ince. The definite conclusion reached was that, speaking generally, no commercial fertilizer, not even phosphorous, is at present an economic advantage in the raising of grain in North Dakota.

CLOVER AND WILD OATS

Weeds are no doubt a blessing in disguise, to compel better farming. In North Dakota at the present time the disguise

reaches its highest perfection in wild oats. Clover is a pretty good weed killer, smothering many the first spring after the wheat is off, or catching them in the first cutting of clover. Clover will not eradicate wild oats, but it will check them hard, getting every oat that is on or near the surface after the wheat of the year before.

FAILURES IN CLOVER

With the one exception mentioned, we have not failed at any time to get a fair *catch* of clover. Several times, Cloverlea has had but half a *crop* of clover, but there has never been a complete crop failure in any year except in the drought of 1900. Can any clover section in the east show so good a record? Should not the men of North Dakota take courage from this?

After clover seed is taken from a field, if the ground is not plowed in the fall, that field is likely to show the next spring the most beautiful stand of clover ever seen. Trust her not, he is fooling thee! She did it twice for us at Cloverlea Farm. Such a catch clover crop does not make a success, partly, it may be, because the self-seeding is too thick, but at any rate the unplowed ground is too hard—clover surely needs a good bed to lie in.

For lack of a good seed bed, we had another failure. Years ago we took a poor piece of wheat stubble—we had more of that kind then than now—disked it well and seeded it late in the fall to clover. We planned that without a nurse crop it should do well, but it didn't—clover, like little children, must have a good start in life.

USES OF CLOVER

It seems absurd to tell any farmer of the uses of clover when he well knows that he could make very good use of it if he only had it. However, having in mind chiefly the important part that clover may play in the rotation of North Dakota

crops, we think it may be encouraging to some to show what is done with clover at Cloverlea Farm.

Wise rotation at best has some difficulties in a North Dakota farm. Any man who tells precisely how he cuts up his Dakota farm in an undeviating rotation may be safely considered a very dull person, or imaginative—surprises await him.

Cloverlea Farm is a long way from perfection as to the best rotation, but has found clover an invaluable aid in that direction.

CLOVER IN THE ROTATION

Starting with the plan of seeding down every year approximately one-tenth of the farm, we take fields that have had two, three or four crops of grain (of one kind or another), selecting the land most needing restoration, judged not only by its apparent condition but also by its record, and seed 80 to 160 acres in clear red clover and a like acreage in clover and timothy mixed, always with wheat as the nurse crop.

The clear clover is, the next season, treated strictly as a one-year crop. First, we take a crop of hay and, when the promise is good, reserve the second cutting for seed. After the seed is off, the land is plowed that fall, unless late season compels its being plowed the next spring—and prosperity is ours in the next two or three grain crops on that land if there is any such thing as prosperity going at that time.

The clover and timothy fields are treated as two-year crops, one-half as meadow and the other half as pasture.

The first year of the meadow, we take one crop of mixed hay, and the second cutting, unless there is urgent demand for hay or pasturage, is reserved for clear clover seed, the first cutting having prevented the timothy from making seed. In the second year of the meadow, now largely timothy (unless we took clover seed the year before and left a catch crop of clover) the hay is taken and that land immediately broken, and later backset.

The pasture is used from the beginning, but early close grazing is avoided because we have the old pasture to use until it is broken up in midsummer; this leaves the new pasture un-

grazed till there is substance in the young clover. In the second year of the pasture (now become the "old pasture") it is grazed heavily from early in the spring till breaking time, when it is broken, and later backset, like the meadow that same summer. It should be mentioned that this second year the pasture, if it has not been grazed too closely the year before, will be still pretty well filled with clover which will continue till the sod is turned under.

This completes the two years of clover and timothy mixed that we started with; that is, each field has a season and a half in timothy and clover and a half-season given over to breaking and backsetting the land. Here is again real sod land, well stocked with humus and qualified to yield three, four or five good grain crops, often starting with flax. Flax, in this way, coming only once in several years on the same land, is found to be a profitable crop at Cloverlea.

This statement as to rotation of crops looks too machine-made to suit Cloverlea, where too much or too little moisture, abundant or lean condition of pastures and other things come in to bend the best laid plans. However, the scheme is substantially as stated, with a record of over 200 acres average annually laid down in clover and clover and timothy during the last fifteen years.



A good Hay Crop at Cloverlea

PASTURES

The entire farm, save one quarter section, is fenced with 22 miles of sheep-tight cattle fencing, long since paid for by the grazing afforded by fields that would otherwise have been useless in that respect. Having the fences, we get much grazing from fields not then in pasture, and are thus enabled to pasture our stock on less land than would be necessary without the fences. With two small river-bend pastures (47 acres) that cannot well be worked, 120 acres suffice for grazing 45 head work horses, 450 sheep and 118 head of cattle.

At Cloverlea we bring pastures into rotation; we should consider it poor farming indeed to continue land in pasturage that had become better fitted for grain crops than any other land of the farm. Oh, yes, we have heard of the evil of breaking up permanent pastures in England and Kentucky and elsewhere, but we are speaking of grain farms in North Dakota.



SHEEP AND CLOVER

Sheep have been kept steadily at Cloverlea Farm during the past fourteen years, ever since we began to feel sure of clover. We carry over about 250 head of high-grade Shropshire ewes and market each fall about 200 good prairie lambs. The wool and lambs bring in an average of about \$1,300 each year, and it is the nearest like "finding money" of anything that happens at Cloverlea, partly because the sheep may be shifted from field to field, delighted with any kind of good food, including most weeds, though not all. They will roam a piece of summer-

plowing and graze the strips along the fences and prosper, while they will fatten on the stubbles in the fall. In good sized pastures we run sheep, horses and cattle together when there is occasion without harm to the sheep.

But a flock of sheep becomes a nuisance of the first magnitude to him who is not fairly equipped with feed and fences. It may be added that there appear to be positive limits to the size of flock of sheep that may be profitably maintained on a North Dakota grain farm. It does not seem the best use of land to carry sheep even in clover pastures longer than is required to restore those pasture lands to good condition for again raising grain. Beyond such limits, we are now making our gradual increase of live stock in cattle rather than in sheep.

FEEDING CLOVER

We feed clover hay to horses without restriction and without bad results. We have had but one horse with heaves, and that was many years ago. We should, in fact, have a larger proportion of clear clover hay than we do but for the need of sowing timothy with the clover to safeguard our hay supply and pastures against failure through possible loss of the clover.

Since everyone who writes on clover seems to feel called upon to say something about clover bloat, we will say that we have never had a case. This is perhaps chiefly because there is now some clover growing in all our pasture lands.

However, we exercise care in putting stock on clover, invariably seeing to it that they are not hungry when first turned in and that the pasture is not then wet either from dew, rain or frost. Stock new to the farm are at the beginning left in the pasture less than half an hour if the clover is at all heavy; soon all stock is left on the clover all the time.

CLOVER SEED

Clover seed has been a variable crop with us, but with maturity of the tilled soil and the acclimatization of the seed, it seems more reliable. But the more important thing contributing

to this is no doubt the increase of natural agencies cross-pollinating red clover. The fertilization of red clover is still an elusive branch of agricultural science, though pursued by many eminent men. We are not aware that it has yet been determined what are the chief agencies that carry the pollen from one red clover plant to another in North Dakota, but it is certain that the thing is done, and it seems reasonable that these agencies should increase as the cultivation of clover increases.

As it is, the clover seed crop has proved a valuable one at Cloverlea. The clover seed market is very broad and one of the most stable of all American farm markets. We therefore urge our fellow farmers of North Dakota to raise medium red clover seed, always in connection with live stock to use the hay and pasturage.

OTHER THINGS IN THE CLOVER SCHEME

Having at last learned how to raise alfalfa, through inoculation, its one lack with us, that crop is now a small but growing part of the scheme at Cloverlea—not in rotation, but as an unfailing resource in dry times, and good at all times.

Silage is also used as a valuable supplement to clover hay in winter feeding. We would not be without it, but it cannot compete on even terms with clover hay in present day North Dakota

farming. For one thing, the hay is put up so cheaply and in such excellent condition with modern stacking machines—we put up 135 acres of heavy red clover hay last season with two machines and six bull rakes in three days—while cutting corn and refilling the silo is not so very cheap a process in threshing time, when it must be done. Then, corn cannot on the average North Dakota farm afford the large measure of rotation that we must have if we are to prosper.



We are beginning this year to plant sweet clover and believe it has a good place in North Dakota agriculture.

SUGGESTIONS

It has been the aim of these few pages not to instruct, but to persuade—not to provide a complete manual of clover growing, but to convince farmers of its abundant success in North Dakota. But a word or two of suggestion may be added

AS TO SOIL.—It may be said, in a general way, that any good corn soil should be good for clover and that clover can well stand a soil somewhat heavier than that.

HIGH STUBBLE.—At harvest time it is well to leave a high stubble over the young clover, though that is not now considered very important at Cloverlea; we used to leave the highest possible stubble.

REMOVING THE GRAIN SHOCKS from the field of young clover is unnecessary; do not go to that expense. The shocks, it is true, will generally kill the young clover under them by the time the grain is ready to be stacked or threshed, but that is not serious; the clover crowds in and covers the spots pretty well so that by the second cutting the next year they cannot be even found. Anyway, it would be far cheaper, when the rush of harvesting and threshing is over, to sprinkle a little clover seed where each shock has stood.

POOR LAND.—If we had a field in too poor condition, through long cropping, to raise another crop of spring grain (as we once had, but have not now), we should, if there was time, seed it to rye and timothy and add clover seed the next spring, before the ground is soft, if possible; or else plow and harrow well in the fall and lay it down in clear clover, or clover and timothy, early in the spring (on the frozen ground when practicable) and without a nurse crop.

MEDIUM RED CLOVER is the thing. Alsike requires too much water and mammoth clover has no place ordinarily in North Dakota. Mammoth clover is good for plowing under, but there are few fields in North Dakota where plowing under clover will or should be practiced.

A BUNCHER attached to a five-foot mower makes an excellent tool for gathering the seed clover. The cut clover may be threshed from the field as it lies if the huller can be had within a reasonable time, or else should be stacked and topped out with long grass reserved and cut for the purpose, or with long hay.

DO NOT BURN CLOVER STRAW—it is too valuable as manure. Some may be fed, depending on its condition; it may be used for bedding or spread in the yards to make the best of manures, or spread on the fields direct.

OLD PASTURES.—Why continue old pastures? Why not trade off, with yourself, a weary piece of wheat stubble that so much needs rest and get a rich piece of pasture sod to put into grain? Do you know, you can trade even and get a good fence around the land besides? Figure it out: Eight grain crops on a piece of land vs. three crops of grain, one year in hay (or hay and clover seed), one in pasture and then three crops of grain again.

SWEET CLOVER.—If we may believe one-half of what is now said in its favor, every farmer in North Dakota should make some trial of sweet clover.

PLANT WILLOWS.—Every prairie farmer of sound mind and with hope in his heart plants trees, of course, but there are many in North Dakota who have not yet come to a full appreciation of the value of the willow; we were slow in learning it at Cloverlea.

By planting willows there is assured an unfailing supply of fence posts without cost, thereby greatly forwarding the clover scheme.

The willow makes a good windbreak; it shows the first touch of color in the spring, but its surpassing merit lies in the fact that when cut in the dormant stage it will not die, but will bear heavier than before. Twelve years ago we cut 500 poles from the grove for the roof of a straw shed for sheep, and now the stumps that were then left have given us 500 good fence posts and have begun their mission of growing more posts, incidentally furnishing much firewood. We have bought no firewood for twelve years.

If you haven't a good grove of willows, stop seeding for a few hours, if necessary, next spring and plant some willow trees—no grain planting that you can do will give you such big returns.

RECORDS.—Every farmer should keep yearly records of the farm operations. There is both value and much satisfaction in them, but they should be very simple. Elaborate records are not worth the time put into them and in the end are likely to wholly discourage the man who makes them.

A map, or sketch, each year, showing the different crops, with a brief note or two on each space as to time of seeding, acreage, yield and kind of plowing has real value, especially with clover and greater rotation of crops. Cloverlea has kept such record-maps for twenty-five years and considers the few hours a year devoted to making them the best invested time of the year's work. We color our maps with school crayons, the wheat yellow, all grass and clover green, etc., the more readily to catch the eye. It takes but a few minutes and is worth while.

LOOKING FORWARD

Who seeds timothy alone in North Dakota? Most farmers. Why not add clover? If it is a matter of the cost of the seed, greater returns may be had by putting a part of the money into clover instead of all timothy; the acreage may be reduced and produce the same amount of hay while the clover will materially enrich the land even after the top is removed for hay and pas-

turance. Why bury seed wheat by the ton so cheerfully every spring in the doubtful hope of reward, when clover seed put in with the timothy gives surer promise with small outlay? Try at least 2 or 3 pounds of clover in every acre laid down to timothy. That will do for a start; but better still, put in a full 5 pounds and take courage.

Cloverlea Farm puts in 25 bushels or so of red clover seed every year, not for the fun of it, but because it pays. You may say: "Oh, yes, but they raise their own seed and don't need to buy it." True, but think of this: Clover seed is gold, whoever has it, and there has never been a bushel of clover seed put in by Cloverlea Farm that could not have been sold by the farm at the very price you would need to have paid for clover seed. Come, plant some clover; get the habit and stop worrying about hay and pastures.

AN IDEAL FOR NORTH DAKOTA

Would you see the Red River Valley and all fairly heavy lands of the state blossom as the rose and bring to their people a prosperity as yet unknown? Then let every farm contribute its share, *and get its share*, by laying down every year one-tenth of its area to new red clover or clover and timothy.

CLOVERLEA SEED CO.

This company carries on the seed business formerly done by Cloverlea Farm and has the same management as the farm.

HARDY CLOVER SEED

The need of hardy plants is shown in the half-crop that sometimes carries through our severe winters. Beyond a doubt, it is only the hardiest plants that survive. By planting in succession the seeds from these hardiest plants, as has been the natural course at Cloverlea for eleven years on the open prairie, the type becomes fixed, as could not be the case with seed replenished from milder climates and more protected situations. The North Dakota Agricultural College has shown its belief in the importance of clover seed bred up to hardiness in North Dakota by taking one year 15 bushels of red clover seed raised at Cloverlea Farm for distribution throughout the state.

NORTH DAKOTA CLOVER SEED

Such North Dakota clover seed as finds its way to market is classed by seedsmen as the highest grade that is grown. Engendered by the cold climate and strong new soil where "clover sickness" of the soil has never been known, it has size, weight and vigor unsurpassed by any clover seed grown in America. Clover seed grown in warmer climates is often mixed with that grown in colder climate to make it marketable. Why not get all cold climate seed?

WHAT WE SELL

Though we sell such field grain seeds as are common to North Dakota farming, our principal business is the selling of medium red clover seed. Our supply is, first, that raised at Cloverlea Farm which bears the name "Cloverlea" in the brand. After that we sell of red clover none other than North Dakota seed. Most of this will still be from Traill County, N. D., seed that largely has its origin in seed grown on Cloverlea Farm. For the selection of the Traill County seed, we have unusual facilities since Cloverlea Farm hulls most of the clover grown in the county.

GUARANTY

We put out under the "Good Luck" brand only our highest grade of seed. Owing to variation in soil conditions and vicissitudes of crops we cannot assume responsibility after the seed is planted. However, any of our clover seed that is unsatisfactory may at once be returned to us and we will refund the full amount paid for it together with the freight paid by the buyer; further, we will, on application, grant twelve days in which an official inspection of the seed may be made.

TERMS AND REFERENCES

Cash is invariably required with orders, or shipments will be made accompanied by bank draft in the usual way.

Reference is had by permission to the following:

Merchants National Bank of St. Paul, Minn., where Cloverlea Farm has had its account for 25 years.

Blanchard Mercantile Company, Blanchard, N. D.

The Postmaster at Blanchard, N. D.

Also see Dun's or Bradstreet's. Ask any banker.

CARL HILSTAD, }
GEORGE HILSTAD, } Managers.

CLOVERLEA SEED COMPANY,
BLANCHARD, N. D.

HARDY



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